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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,318	12/02/2003	Katsuki Hazama	20433-00601-US2	2698
35690 7590 06/06/2007 MEYERTONS, HOOD, KIVLIN, KOWERT & GOETZEL, P.C. P.O. BOX 398 AUSTIN, TX 78767-0398			EXAMINER BOOTH, RICHARD A	
			ART UNIT	PAPER NUMBER
			2812	
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			06/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

10/725,318

Applicant(s)

HAZAMA, KATSUKI

Examiner

Richard A. Booth

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 134, 136-138, 142-145, 152-158 and 170-172 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 134, 136-138, 142-145, 152-158 and 170-172 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 134-138, 142-145, 152, 154-158, and 170-172 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kono et al., U.S. Patent 4,766,088 in view of Fujii et al., U.S. Patent 5,470,771 and Kajita, U.S. Patent 5,449,629.

Kono et al. shows the invention as claimed including a semiconductor device comprising : a memory transistor having a composite gate structure containing a first conductive film 26a, a first insulating film 30a, and a second conductive film 33a that overlie a first channel region, wherein said first conductive film is disposed closer to said first channel region than said second conductive film; and a peripheral transistor having a single gate structure containing a third conductive film 26b and a fourth conductive film 33d that overlie a second channel region, wherein said third conductive film is disposed closer to said second channel region than said fourth conductive film; wherein said first conductive film and said third conductive film are fabricated from a first common polysilicon layer (see figs. 4-9 and col. 4-line 5 to col. 7-line 21).

Kono et al. does not expressly disclose wherein said second, third, and fourth conductive films each have a conductivity that is substantially the same and that is

higher than a conductivity of said first conductive film, and wherein the peripheral transistor includes films in contact over their cross-sections.

Fujii et al. discloses forming a floating gate which has a portion with a lower conductivity than other portions of the floating gate and the control gate (see abstract). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Kono et al. so as to form the first conductive film with a lower conductivity than the second, third, and fourth because in such a way the device will operate more effectively. Furthermore, Kajita discloses forming a peripheral transistor including films 28,60 in contact over their cross-sections (see figs. 6B-6C and col. 11-line 37 to col. 12-line 10). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Kono et al. modified by Fujii et al. so as to form the peripheral transistor using films in contact over their cross-sections because in such a way it allows, for example, the use of undoped polysilicon since the dopants will be diffused from one film to another.

With respect to the particular impurity concentrations or thicknesses of the films, generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.

Claim 153 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kono et al., U.S. Patent 4,766,088 in view of Fujii et al., U.S. Patent 5,470,771 and Kajita,

U.S. Patent 5,449,629 as applied to claims 134-138, 142-145, 152, 154-158, and 170-172 above, and further in view of Deustcher et al., U.S. Patent 6,103,576.

Kono et al. and Fujii et al. are applied as above but do not expressly disclose wherein the dielectric between the floating and control gate is ONO.

Deustcher et al. discloses that an advantage to having an ONO layer between a floating and control gate is that the pinholes are greatly reduced (see col. 2-lines 18-26). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Kono et al. modified by Fujii et al. and Kajita so as to have an ONO film between the floating and control gates because in such a way pinholes are reduced and it is possible to have a thinner layer than a conventional oxide would provide.

Response to Arguments

Applicant's arguments filed 03/28/07 have been fully considered but they are not persuasive.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by

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combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the references is clearly stated in the above rejections.

Furthermore, note that Fujii is relied upon to disclose the first conductive film having a lower concentration than other films and is not relied upon to show a peripheral transistor or to show third and fourth conductive films that are in contact over their cross-sections.

Conclusion

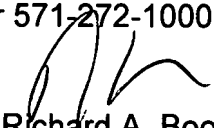
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is (571) 272-1668. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Richard A. Booth
Primary Examiner
Art Unit 2812

May 29, 2007